

REMARKS

Claims 1-37 are pending in this application. Claims 38-86 are canceled. Claims 1-37 are rejected.

Claim Amendments

Claims 1 and 4 are amended to change the "first beam" and "second beam" to "one or more beams with at least a first part and a second part" to clarify that both the photons that are encoded with position information and the other photons are conveyed by the same optical conduit.

Claim Rejections under 35 USC 102

Claims 1 and 3 are rejected under 35 USC 102(b) as being anticipated by Fauver et al. (U.S. Patent Publication No. 2002/0064341 A1). Applicant respectfully requests reconsideration.

Claim 1 as amended includes the following limitation:

"encoding at least information about a set of one or more positions of the optical conduit on at least the second part"

Figure 13 of the application shows an example of "encoding" as claimed. The example is explained in paragraph [0059] of the application as follows: "[I]n Figure 13, the optical conduit 1340 transmits a beam of light rays 1350 from light source 1310 onto a window 1370, and a coating providing a pattern on the window 1380. The pattern is encoded in the rays 1350, which are partially reflected back into the optical conduit 1340, and reach the detector after a partial reflection from the beam splitter 1320. The electrical signal from the detector 1330, thereby results from the pattern on the window 1380, and determines the position of the optical conduit 1340 relative to the window 1370."

In contrast with the above claim language, Fauver does not perform "encoding" of position information of an optical conduit on the illumination. Instead, Fauver discloses at paragraph [0072] that, in both embodiments of Fauver that determine the position of the waveguide, "differential signals from the multiple sensors (piezoelectric

thin films attached to the sides of the waveguide or optical detectors attached to the inside walls of the waveguide enclosure) will be used to determine the real-time position of the scanned waveguide” As examples of sensors that gather these differential signals used to determine the position of the waveguide, Figs. 1A, 1B, 2A, and 2B show sensors spatially arranged about the waveguide. These differential signals, in combination with the already known positions of the detectors, are used to determine the position of the waveguide. For example, if differential signals from a top sensor located on top of the waveguide and a bottom sensor located on the bottom of the waveguide indicate that a stronger signal is coming from the top sensor than the bottom sensor, then the distal tip is likely to be closer to the top sensor than the bottom sensor.

Thus, in these embodiments disclosed by Fauver, “encoding” information about the position of the waveguide is not performed on the “second part”, as required by the above language of claim 1. For example, the second part itself is not encoded with the information “the waveguide is closer to the top”. Instead, the already known positions of the detectors are combined with the differential signals from the different detectors to determine the position of the waveguide.

Thus, Fauver does not anticipate claim 1 at least because Fauver does not disclose the claim language quoted above.

Claim 3 depends from claim 1 and is not anticipated for at least the same reasons.

Accordingly, reconsideration of the rejection of claims 1 and 3 is respectfully requested.

Claims 4, 17, 24-26, 28 and 35-37 are rejected under 35 USC 102(b) as being anticipated by Smithwick et al. (U.S. Patent No. 6,845,190 B1). Applicant respectfully requests reconsideration.

Claim 4 includes the following limitation:

“a patterned optical element encoding at least a set of positions of the optical conduit on at least part of at least the second part”

Examples of a “patterned optical element” as claimed are in Figure 13 of the application. Figure 13 shows a pattern on window 1380, which is explained in paragraph [0059] of the application as follows: “the pattern is encoded in the rays 1350,

which are partially reflected back into the optical conduit 1340". Figure 13 shows other examples of patterned optical elements, such as bar pattern 1381 and gradual shading patterns 1393.

In contrast with the claim language, Smithwick et al. explains at column 18, lines 13-37, that the polarization filter, polarization beam splitter, and stop filter are part of a system that detects the repolarization of polarized light: "The sensor in FIG. 17 detects this repolarization to determine the position of an optical fiber as it moves and bends." Thus, the polarization filter, polarization beam splitter, and stop filter cited are detecting information from a beam, instead of "encoding ... a set of positions of the optical conduit" on the second part as claimed, and thus do not disclose the above claim language.

Smithwick et al. does not anticipate claim 4 at least because Smithwick does not disclose the claim language quoted above.

Claims 17 and 24-26 depend from claim 4 and are not anticipated for at least the same reasons.

Claim 28 includes the following limitation:

"one or more patterned optical elements encoding at least positions of the one or more optical conduits on at least part of at least the second set of beams"

Smithwick et al. does not anticipate claim 28 at least because Smithwick does not disclose the claim language quoted above.

Claims 35-37 depend from claim 28 and are not anticipated for at least the same reasons.

Accordingly, reconsideration of the rejection of claims 4, 17, 24-26, 28 and 35-37 is respectfully requested.

Claim Rejections under 35 USC 103

Claim 2 is rejected under 35 USC 103(a) as being unpatentable over Fauver et al. (U.S. Patent Publication No. 2002/0064341 A1). Applicant respectfully requests reconsideration.

Claim 2 depends from claim 1. Claim 1 includes the following limitation:

“encoding at least information about a set of one or more positions of the optical conduit on at least the second beam”

Fauver does not make claim 1 unpatentable at least because Fauver does not disclose the claim language quoted above. Because claim 2 depends from claim 1, Fauver does not make claim 2 unpatentable.

Accordingly, reconsideration of the rejection of claim 2 under 35 USC 103(a) is respectfully requested.

Claims 5-16, 18-23, 27, and 29-34 are rejected under 35 USC 103(a) as being unpatentable over Smithwick et al. (U.S. Patent No. 6,845,190 B1). Applicant respectfully requests reconsideration.

Claims 5-16, 18-23, and 27 depend from claim 4. Claim 4 includes the following limitation:

“a patterned optical element encoding at least a set of positions of the optical conduit on at least part of at least the second part”

Smithwick et al. does not make claim 4 unpatentable at least because Smithwick et al. does not disclose the claim language quoted above. Because claims 5-16, 18-23, and 27 depend from claim 4, Smithwick et al. does not make claims 5-16, 18-23, and 27 unpatentable.

Claims 29-34 depend from claim 28. Claim 28 includes the following limitation:

“one or more patterned optical elements encoding at least positions of the one or more optical conduits on at least part of at least the second set of beams”

Smithwick et al. does not make claim 28 unpatentable at least because Smithwick et al. does not disclose the claim language quoted above. Because claims 29-34 depend from claim 28, Smithwick et al. does not make claims 29-34 unpatentable.

Accordingly, reconsideration of the rejection of claims 5-16, 18-23, 27, and 29-34 under 35 USC 103(a) is respectfully requested.

CONCLUSION

Applicant respectfully submits that the pending claims are now in condition for allowance and thereby solicits acceptance of the claims, in light of these amendments and remarks.

The Commissioner is hereby authorized to charge any fee determined to be due in connection with this communication, or credit any overpayment, to our Deposit Account No. 50-0869 (BENI 1001-1).

Respectfully submitted,



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